SI.No.M21324 Course code: 32718203

VINAYAKA MISSION'S RESEARCH FOUNDATION, SALEM
(Deemed to be University)
B.Sc(NUCLEAR MEDICINE TECHNOLOGY) DEGREE EXAMINATIONS - September 2021
Second Year
RADIO BIOCHEMISTRY & RADIO PHARMACY

Three Hours Maximum: 75 marks

SECTION - A

I. Choose the Best Answer : (10 x 1 = 10)

1. Which of these particles are highly penetrating?
   a)Alpha particles b)Beta particles
   c)Gamma particles d)X-ray particles
2. Alpha emission is characteristic of heavier radioactive elements such as thorium, uranium, etc.
   a) True b) False
3. Which of the following emissions have low ionizing power?
   a)Alpha particles b)Beta particles
   c)Gamma particles d)X-ray particles
4. The basic unit used to describe the energy of a radiation particle is curie.
   a) True b) False
5. When a chemical splashes in the eye rinse for _____
   a) 10 seconds b) 30 seconds
   c) 5 minutes d) 15 minutes
6. After a biohazard spill is covered with paper towels and disinfectant solution, it must sit for _____ minutes?
   a) 5 b) 30
   c) 60 d) 20
7. The most important factor for determining the exposure hazard of a particular isotope is:
   a) Activity b) Decay energy
   c) half-value layer d) physical state
8. At a MINIMUM, how often must wipe tests be performed when using Carbon 14 or Tritium (3H):
   a) Every week b) Every day
   c) After every experiment d) A survey meter can be used instead of wipe tests with C-14 and H-3

(p.t.o.)

9. Before ordering radioactive materials you should:
   a) Contact Environmental Health & Occupational Safety
   b) Ensure the quantities are within the limit of your license
   c) Dispose of all radioactive materials in the laboratory
   d) a & b only

10. You have received an isotope quantity identified as 10 mCi. The Curie (Ci) is one unit for measurement of:
   a) The ability of photons to produce ionizing radiation
   b) Rate of radioactive events (eg. disintegrations per second)
   c) The amount of energy absorbed by tissue
   d) All of the above

II. Write Short Answers on any FIVE of the following: (5 x 5 = 25)

11. Line of stability.
12. Coordinate covalent bond.
13. Lympho scintigraphy tracers.
14. Immunology.
15. What are Buffer Solutions?
16. Why is ^{131}-I-mIBG is taken up by neuroblastoma?
17. Centrifuge.

III. Write Short Essays on any TWO of the following: (2 x 10 = 20)

18. What is DTPA? How is it useful in Nuclear Medicine. Elaborate on Preparation of DTPA cold kit?
19. Mention the major four steps in the synthesis of thyroid hormone.
20. Why cadmium rods and graphite rods are used in reactor?
21. Radionuclide generators for Tc^{99m}.

IV. Write Essays on any ONE of the following: (1 x 20 = 20)

22. Behavior of Radioactive tracers in the body with a note on Physical & Biological half
23. Explain the various equilibrium's in generator produced radionuclides.

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